

REMARKS

This responds to the Office Action mailed on October 20, 2004.

No claims have been amended, canceled, or added. Claims 4, 6-8, 12-17, and 25-31 were previously withdrawn from consideration. Claims 1-17 and 25-31 are now pending in this application.

Information Disclosure Statement

Applicant submitted a Supplemental Information Disclosure Statement and a 1449 Form on March 23, 2004. Applicant respectfully requests that an initialed copy of the 1449 Form be returned to Applicant's Representatives to indicate that the cited reference has been considered by the Examiner.

§103 Rejection of the Claims

Claims 1-3 and 9-11 were rejected under 35 USC § 103(a) as being unpatentable over Marrs et al. (U.S. 5,355,283) in view of Goldstein et al. (U.S. 5,904,955). Applicant respectfully traverses the rejection and requests the Office to consider the following.

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). (M.P.E.P. § 2143 8th Ed, Rev.1).

As a point of order, the Office Action states an obviousness conclusion (Office Action, page 3) that includes reference to Sawada, which was not cited for the rejection of claims 1-3 and 9-11. Because the form of the rejection, particularly the conclusion is defective, withdrawal of the rejection is respectfully requested.

The Office Action admits that Marrs et al. does not disclose "using a fiber reinforced encapsulation material." (Office Action at page 2). The Office Action next appeals to Goldstein to fill this deficiency. Goldstein is concerned, however with adhesion problems (Goldstein, column 1, lines 38 *et seq*) and uses a two-phase encapsulant, transfer-molding technology. Goldstein's structure illustrates a two-phase, boundary-layer structure that could not be formed in Marrs' structure because of the complex geometry that would need to be filled with his two-phase encapsulant materials 46 and 48 (see, e.g., FIGs. 5 and 6. Because Goldstein's adhesive, two-phase encapsulant structure could not be sustained during manufacture when applied to Marrs' BGA 500 (FIG. 5), withdrawal of the rejection is respectfully requested.

Applicant notes that claims 2, 3, 5, 9 , and 11 depend from claim 1 and are therefore also not unpatentable over the cited references. Withdrawal of the rejections is respectfully requested.

Claims 2 and 3 add limitations of fiber size and aspect ratio, respectively. The Office Action admits that Goldstein does not recite fiber lengths, and cites to case law regarding size ranges that "overlap or lie inside ranges disclosed by the prior art." (Office Action, page 3, citation omitted). Goldstein discloses no ranges at all, and the Office Action admits that Marrs does not even disclose fibers. Thus a *prima facie* case of obviousness has not been established since there are no ranges disclosed in the cited references. Withdrawal of the rejections is respectfully requested.

Claim 11 teaches a metallization that is built up over the package core. Neither Marrs nor Goldstein teaches this limitation. Were either of these to teach such a technology, there remains no reasonable expectation of success by the combination of Marrs with Goldstein, as set forth above. Applicant respectfully asserts that these claims are allowable over the cited references. Withdrawal of the rejections is respectfully requested.

Claims 9 and 10 claim specific materials. Because the combination of Marrs with Goldstein does not teach all the claim elements, and because there is no reasonable expectation of success by the combination of Marrs with Goldstein, as set forth above, Applicant respectfully asserts that these claims are allowable over the cited references. Withdrawal of the rejections is respectfully requested.

Claim 5 was also rejected under 35 USC § 103(a) as being unpatentable over Marrs et al. in view of Goldstein et al. and further in view of Sawada et al. (U.S. 5,424,250). Applicant respectfully traverses this rejection and requests the Office to consider the following.

Sawada teaches that transfer molding is not contemplated for his technology (e.g. see column 6, lines 63-68), and further, the attempt to transfer mold a cloth is technologically difficult if not impossible. Sawada thus teaches a structure that cannot include “a package core having ... a microelectronic die located within the opening of said package core; and a fiber reinforced encapsulation material within the opening of the package core” (Claim 1). Further, since Sawada’s technology is specifically directed toward avoiding bubbles, the attempt to even pressure mold the sheets taught in Sawada, would result in likely bubbles in the hole 509 of Marrs et al. Because Sawada’s technology is inimical to Marrs’ technology, the reasonable expectation of success to achieve a combination of Marrs with Sawada can come only from Applicant’s disclosure.

Claim 5 claims specific materials. Because the combination of Marrs with Goldstein and Sawada does not teach all the claim elements, and because there is no reasonable expectation of success by the combination of Marrs with Goldstein and Sawada, as set forth above, Applicant respectfully asserts that these claims are allowable over the cited references. Withdrawal of the rejections is respectfully requested.

RESPONSE UNDER 37 CFR § 1.111

Serial Number: 09/854,539

Filing Date: May 14, 2001

Title: POLYMERIC ENCAPSULATION MATERIAL WITH FIBROUS FILLER FOR USE IN MICROELECTRONIC CIRCUIT
PACKAGING

Assignee: Intel Corporation

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Dkt: 884.415US1 (INTEL)

Conclusion

Applicant respectfully submits that the claims are in condition for allowance and notification to that effect is earnestly requested. The Examiner is invited to telephone Applicant's attorney John Greaves at 801-278-9171, or the below-signed attorney at 612-349-9592, to facilitate prosecution of this application.

If necessary, please charge any additional fees or credit overpayment to Deposit Account No. 19-0743.

Respectfully submitted,

INTEL CORPORATION ET AL.

By their Representatives,

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Date

Jan. 21, 2005

By

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CERTIFICATE UNDER 37 CFR 1.8: The undersigned hereby certifies that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail, in an envelope addressed to: MS Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on this 21 day of January 2005.

Name

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Signature

Chris Hammond